(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
1 February 2001 (01.02.2001)

PCT

(10) International Publication Number
WO 01/07134 A1

(51) International Patent Classification[7]: B01D 3/34, 1/22, C02F 1/04

(21) International Application Number: PCT/US00/20336

(22) International Filing Date: 26 July 2000 (26.07.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/145,692 26 July 1999 (26.07.1999) US

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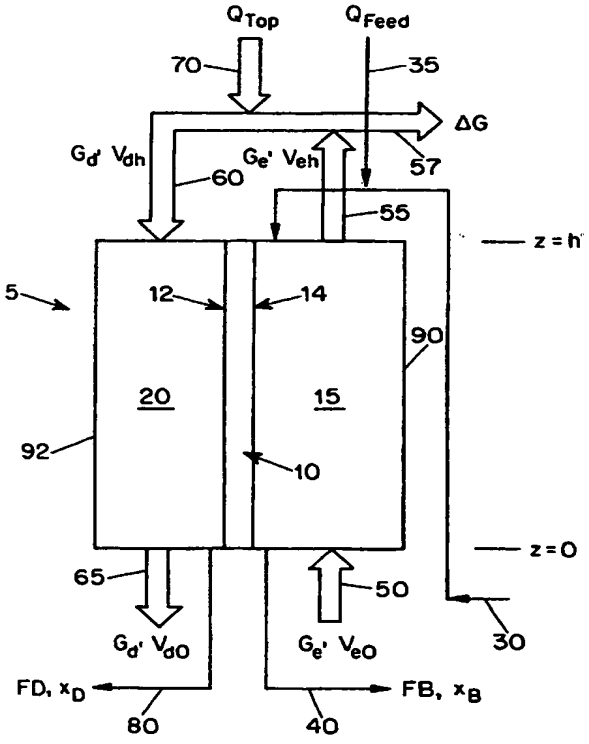
(81) Designated States *(national)*: CA, JP, KR, SG, US.

(84) Designated States *(regional)*: European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published:
— *With international search report.*
— *Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND APPARATUS FOR SIMULTANEOUS HEAT AND MASS TRANSFER UTILIZING A CARRIER-GAS



(57) Abstract: A continuous contacting apparatus for separating a liquid component from a liquid mixture comprises: (i) an evaporation chamber (15) having first and second ends, an inlet (50) and an outlet (55) for a carrier gas, and an inlet (30) and an outlet (40) for a liquid mixture, wherein the inlet (30) for the liquid mixture and the outlet (55) of the carrier gas are located on the first end of the evaporation chamber (15); (ii) a dew-formation chamber (20) having an inlet (60) and an outlet (65) for a carrier gas and an outlet for the separable liquid component (80), wherein the inlet for the carrier gas (60) of the dew-formation chamber (20) is situated in a countercurrent manner to the inlet for the carrier gas of the evaporation chamber; (iii) a common heat transfer wall (10) providing thermal communication between the evaporation chamber (15) and the dew-formation chamber (20); (iv) a feeding device for providing the liquid mixture onto the evaporation side of the heat transfer wall; (v) an air mover for controlling a flow of a carrier gas through the chambers, wherein the gas flow in the evaporation chamber is countercurrent to the gas flow in the dew-formation chamber; and (vi) a heating apparatus for heating the carrier gas from the outlet of the evaporation chamber, wherein the heated carrier gas is directed to flow into the inlet of the dew-formation chamber. Also described is a process for separating a liquid component from a liquid mixture in a continuous contacting manner comprising employing such an apparatus for such separation.

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